

REMARKS

Prior to discussing the Action, applicants note that claim 25 has been amended to return it to its original form. Claim 25 was not rejected in the first Action. Therefore, claim 25 was amended to be in independent form with the intent of including all of the limitations of the base claim and any intervening claims. However, certain of the limitations were inadvertently omitted.

For convenience, headings used in the Action will be used in the present response.

Drawings

The Office states that applicants have submitted a new set of drawings. The Office objects to the new drawings on the basis that the drawings are not numbered correctly resulting in two of Figs. 1, 5 and 6.

Applicants note that the Office incorrectly scanned the response and English translation of the priority applications filed April 3, 2007, into the Image File Wrapper (IFW) of the present application. In the response, no amendments were made to the drawings and a new set of drawings for the present application were not submitted.

In order to be complete, the translations of the priority applications were submitted with translations of the drawings. The

Office incorrectly scanned the translations into the IFW of the present application. The Office scanned the text of the translation and Fig. 2 of JP 2002-377241 as a single entry. The Office scanned Figs. 1 to 6 from the translation of JP 2002-254201 and Fig. 1 from the translation of JP 2002-377241 as a single entry in the IFW identified as "Drawings".

The incorrect entry of the translations of the priority applications has led to the present objection to the drawings. The error in the IFW cannot be corrected by applicants. No action by applicants in connection with the drawings of the translations of the priority applications is believed to be required.

The Office is respectfully requested to correct the IFW of the present application. Removal of the objection to the drawings is believed to be in order and is respectfully requested.

Claim Objections

Claim 3 has been amended to correct the minor informality noted by the Office. Removal of the objection to claim 3 is believed to be in order and is respectfully requested.

Claim Rejections - 35 USC § 103

Claim 1 has been amended to limit the upper limit of the single fiber fineness to 50 dtex. This amendment is supported by ~~the prior art~~

the description in paragraph [0159] of the specification of the present application.

Prior to discussing the prior art rejections of the claims, applicants would like to note the following regarding the present application. When compared with (unsubstituted) fatty acid monoamide (cf. comparative examples 4 and 5), the "specific fatty acid amide" comprising fatty acid bisamide and/or alkyl-substituted fatty acid monoamide defined in claim 1 has a relatively high affinity toward polylactic acid and contributes to rendering bleed-out homogeneous, and at the same time, can prevent lowering of the bleed-out characteristic by keeping reaction from occurring in that the reactivity of the amide is relatively limited and can suppress change in the color tone characteristic, and in addition, has an excellent heat resistance. Thus, it enables a decrease in the surface friction coefficient of polylactic acid fiber produced by a melt-spinning, improves the ability to smoothly pass through processing steps and, at the same time, limits the b^* value of polylactic acid fiber to -1 to 5 to provide a high-quality fiber presenting no tincture of yellow. (See paragraphs [0013], [0067] and [0068] of the specification of the present application).

To add to the above, a melt-spinning method in which deterioration of the "specific fatty acid amide" is suppressed is

adopted as described in paragraph [0081], whereby the object of the present invention can be effectively attained.

Claim Rejections - 35 USC § 103

Claims 1, 3-11, 13, 15, 16, 19, 20, 21, 23 and 26-31 are rejected under 35 U.S.C. 103(b) as being unpatentable over Nishimura (JP 2001-131827) in view of Tan (WO 02/12395; U.S. Patent No. 6,710,135 used as English equivalent) and in further view of Kondo (U.S. Patent No. 5,593,778).

Nishimura is characterized as disclosing polylactic acid based flat yarns comprising polylactic acid with a molecular weight of 90,000-110,000 and a lubricant in the amount of 0.5-5 wt%. The Office states that the lubricant may be ethylene bis-oleic amide or an alkyl-substituted fatty acid monoamide. Nishimura does not disclose the use of melt spun fibers.

The Office cites Tan as disclosing polylactic acid resin compositions having a molecular weight from 2000-500,000, used for nonwoven fabrics and yarn, which may contain a lubricant. The Office characterizes Tan as disclosing melt spinning to be the functional equivalent of tape yarn production.

The position of the Office is that it would have been obvious to a person of ordinary skill in the art to include melt spinning

in Nishimura since Tan teaches melt spinning to be functionally equivalent to tape yarn production.

The Office further cites Kondo as disclosing biodegradable copolyester compositions which are melt spun into fibers having a typical fineness of 5-55 dtex. The position of the Office is that it would have been obvious to a person of ordinary skill in the art to modify the combination of Nishimura and Tan to have a fineness of 5-55 dtex, in view of Kondo, in order to increase the softness of the resulting article.

Applicants respectfully submit that the combination of Nishimura, Tan and Kondo is insufficient to support a case of prima facie obviousness under 35 U.S.C. § 103(a). More particularly, applicants respectfully submits that the combination of references cited by the Office fails to disclose or suggests the properties resulting from the use of the specific fatty acid amide according to the present invention in the melt-spinning of polylactic acid.

The invention of Nishimura relates to a flat yarn provided by slitting a uniaxial-stretch film comprising polylactic acid as main component ([0004]). According to Nishimura, the flat yarn is comparable to a film of a small width, has a fineness of 500-6000 dtex, and if the fineness is less than 500 dtex, the absolute strength tends to be insufficient, and the yarn cannot be processed

to a bag, and the bag, if produced, is prone to be easily broken (claim 3, [0013]).

In contrast to the above, the polylactic acid fiber defined in claim 1 of the present application is a melt-spun fiber having a far smaller fineness of 0.1-50 dtex in terms of the single-fiber fineness, so that when compared with the flat yarn having the thicker fineness according to Nishimura, it is required of the fiber of the present invention to secure a severe wear resistance, an exceeding ability to pass smoothly through processing steps and a higher quality relating to the color tone.

Also, for lubricants to be added to the flat yarn, Nishimura names fatty acid monoamide and fatty acid bisamide, but fails to disclose or suggest the unexpected properties resulting from the use of such lubricants in or for melt-spun polylactic acid fibers. In other words, Nishimura contains absolutely no teaching that, different from (unsubstituted) fatty acid monoamide, the "specific fatty acid amide" of the present invention (i.e. the fatty acid bisamide and alkyl-substituted fatty acid monoamide) can bring about results such that, when they are used in the melt-spinning of polylactic acid fiber, they can improve the wear resistance and the ability to smoothly pass through processing steps, set the b* value,

of the fiber to -1 to 5 and provide a high-quality product presenting no tincture of yellow color.

Tan shows a melt-spun yarn of polylactic acid composition and names a "lubricant" as an example of an additive (col. 7, line 44). However, the particular object for which the addition of lubricant is made is not known and no specific material or substance is disclosed for use as the lubricant. That is to say, Tan does not contain a disclosure of the fatty acid bisamide and alkyl-substituted fatty acid monoamide defined in claim 1 of the present application, and a lubricant is disclosed in Tan only as an example of a functional additive for the fiber.

Also, in col. 10, lines 26-39, Tan recites (6) Tape Yarn Forming and (7) Yarn Forming only as comparable examples of processes for producing a molded or processed article, and it contains no disclosure or description suggestive of the difficulty of providing by a melt-spinning process a high-quality polylactic acid fiber having remarkable characteristics in respect of the wear resistance and the ability to smoothly pass through processing and presenting no tincture of yellow.

Thus, neither Nishimura nor Tan disclose or suggest the subject matter to be solved in the carrying out of melt spinning of polylactic acid, and none of these references contains any teaching

that, as opposed to (unsubstituted) fatty acid monoamide, the fatty acid bisamide and/or alkyl-substituted fatty acid monoamide defined in claim 1 of the present application can improve the wear resistance and the ability to smoothly pass through processing steps of polylactic acid fiber, bring the b^* value of the fiber down to -1 to 5 and attain a high quality presenting no yellow tincture.

In view of the above, applicants respectfully submit that the combination of Nishimura and Tan proposed by the Office will not result in the invention of the present application.

Kondo discloses producing a fiber provided by melt spinning a biodegradable copolymer composition having a fineness of 5-50 denier (5.5-55 dtex).

Kondo also does not disclose or suggest the subject matter to be solved by the present invention and the result brought about by the claimed invention that, as opposed to fatty acid monoamide, the fatty acid bisamide and/or alkyl-substituted fatty acid monoamide defined in claim 1 can improve the wear resistance and the ability to smoothly pass through the process steps of polylactic fiber at the time of carrying out of melt spinning and realize a high quality presenting no yellow tincture.

Furthermore, a person of ordinary skill in the art would not be motivated to modify the invention of Nishimura in view of Kondo since Nishimura discloses the unsuitability of a yarn having a fineness of less than 500 dtex.

Thus, claim 1 and claims dependent thereon of the present application are not believed to be obvious over Nishimura in view of Tan and further in view Kondo.

Claims 1, 3-11, 13, 15, 16, 19, 20, 21, 23 and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obuchi (U.S. Patent No. 6,417,294) in view of Tan and further in view of Kondo.

Obuchi is cited as disclosing films formed from polyester compositions containing nucleating agents. The polyester is a polylactic acid having a molecular weight of 90,000-500,000. The nucleating agent is 0.1-10 wt% of the composition and can be ethylenebislauramide and hexamethylenebisoleamide. Obuchi discloses extrusion molding, but does not disclose the use of melt spun yarn. Tan is cited as teaching melt spinning and extrusion molding to be functionally equivalent. Kondo is cited as above.

Obuchi discloses films and sheets as aliphatic polyester formed items, but contains no disclosure concerning a melt-spun fiber having a single-fiber fineness of 0.1-50 dtex. Therefore,

like Nishimura, Obuchi does not disclose or suggest the object of the present invention to attain an improvement in or relating to wear resistance, the ability to smoothly pass through processing steps and the color tone characteristic of polylactic acid fiber.

Also, Obuchi discloses adding various aliphatic carboxylic acid amides as a transparent nucleating agent (col.10, lines 22-49). Similar to Nishimura, however, Obuchi again is devoid of a teaching that, as opposed to fatty acid monoamide, the fatty acid bisamide and/or alkyl-substituted fatty acid monoamide defined in the claims of the present application can improve the wear resistance and the ability to smoothly pass through processing steps of polylactic acid fiber in the carrying out of melt-spinning and can attain a high quality presenting no yellow tincture.

The inventions of Tan and of Kondo being as explained above, the invention of claim 1 of the present application is not believed to be obvious over Obuchi in view of Tan and Kondo.

Claims 13, 15, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura, Tan and Kondo or Obuchi, Tan and Kondo, in further view of Anderson (U.S. Patent No. 4,009,513). Claims 12, 14, 17, 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura, Tan and Kondo or Obuchi, Tan and

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RESPONSE UNDER 37 C.F.R. § 1.116

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Kando in view of Yamakita (U.S. Patent Publication No. 2003/0079297).

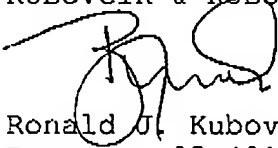
These rejections depend on the rejection of claim 1. Since claim 1 has been shown to be allowable, claims 12 to 15, 17, 18, 22, 24 and 25 are also allowable.

Removal of the 35 U.S.C. 103(a) rejections of the claims is believed to be in order and is respectfully requested.

The foregoing is believed to be a complete and proper response to the Office Action dated May 16, 2007.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension and any other required fees may be charged to our Deposit Account No. 111833.

Respectfully submitted,
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